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EXAMINER

KE, PENG

ART UNIT

PAPER NUMBER

2174

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/742,781

Applicant(s)

RAJARAJAN ET AL.

Examiner

Peng Ke

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This action is responsive to communications: Amendment, filed on 9/6/05.

This action is made final.

Claims 1-29 are pending in this application. Claims 1, 14, and 19 are independent claims. In the Amendment, filed on 9/6/05, 1 and 14 were amended.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1-10, 13-25, 27, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker et al. (US 6,470,482) in view Lyle (US 5,956,023).

As per claim 1, Rostoker et al. teaches in a computing device, a system comprising:

a modeling engine for editing modeling elements, the modeling engine connected to a user interface and operable to emulate an electronic system design having a plurality of electronic elements; (figure 9, item "VHDL"; col. 15, lines 14-53; Examiner interprets design specification, design description, partitioning, Module description, composition, and functional verification to be a part of editing modeling process.)

a layout engine, the layout engine connected to the modeling engine and configured to execute an automatic layout process that automatically lays out modeling elements of the emulated electronic system design; (figure 9, item "VHDL Compiler & Simulator", col. 18, lines 29-68; Examiner interprets Design Compiler to be a layout engine)

However, Rostoker et al. fails to teach a set of at least one interface connecting the modeling engine to the layout engine, the set including at least one interface through which the modeling engine communicates with the layout engine to provide state-maintained user interaction with the automatic layout process other than to cancel the automatic layout process.

Lyle et al. teaches interface one interface connecting the modeling engine to the layout engine, the set including at least one interface through which the modeling engine communicates with the layout engine to provide state-maintained user interaction with the automatic layout process other than to cancel the automatic layout process. (col. 10, lines 30-40)

It would have been obvious to an artisan at the time of the invention to include Lyle's teaching with Rostoker's method in order to provide user with the ability to pause and resume entire process with a push of button.

As per claim 2, Rostoker and Lyle et al. teaches the system of claim 1. Lyle further teaches wherein the modeling engine communicates with the layout engine by calls from the layout engine via the interface (col. 12, lines 45-60).

As per claim 3, Rostoker and Lyle et al. teaches the system of claim 1. Lyle further teaches wherein the modeling engine communicates with the layout engine via events raised by the layout engine (col. 10, lines 41-51).

As per claim 4, Rostoker and Lyle et al. teaches the system of claim 1. Lyle further teaches wherein the modeling engine communicates with the layout engine to provide a progress indicator to the user. (Fig. 11, item 78)

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As per claim 5, Rostoker and Lyle et al. teaches the system of claim 1. Lyle further teaches wherein the modeling engine communicates with the layout engine to obtain status information from the layout engine (col. 12, lines 61-68).

AS per claim 6, Rostoker and Lyle et al. teaches the system of claim 1. Lyle further teaches wherein the modeling engine communicates with the layout engine to interrupt the automatic layout process (col. 10, lines 41-51).

As per claim 7, Rostoker and Lyle et al. teaches the system of claim 1. Lyle further teaches wherein the modeling engine communicates with the layout engine to preserve state of the automatic layout process (col. 10, lines 41-51).

As per claim 8, Rostoker and Lyle et al. teaches the system of claim 7. Lyle further teaches wherein the modeling engine communicates with the layout engine to preserve the state of the automatic layout process by passing an interface thereto (col. 10, lines 41-51, fig 4, item 86).

As per claim 9, Rostoker and Lyle et al. teaches the system of claim 7. Lyle further teaches wherein the modeling engine communicates with the layout engine to restore the state of the automatic layout process, and to resume the automatic layout process (col. 10, lines 41-51).

As per claim 10, Rostoker and Lyle et al. teaches the system of claim 9. Lyle further teaches wherein the modeling engine communicates with the layout engine to restore the state of the automatic layout process by passing an interface thereto (col. 10, lines 41-51). It is inherent that the display will include a resume button.

As per claim 13, Rostoker and Lyle et al. teaches the system of claim 1. Lyle further teaches wherein the modeling engine communicates with the layout engine to obtain capability information from the layout engine (fig. 9, item 102)

As per claim 14, Rostoker teaches a computer-implemented method, comprising:

Starting a layout engine to layout electronic model elements that are part of an emulated electronic system; (figure 9, item "VHDL"; col. 15, lines 14-53)

However Rostoker fails to teaches receiving information from the layout engine indicating that it can be safely interrupted within a current state; and

Interrupting the layout engine in the current state based on the information.

Lyle teaches receiving information from the layout engine indicating that it can be safely interrupted within a current state; and

Interrupting the layout engine in the current state based on the information. (col. 10, lines 30-40)

It would have been obvious to an artisan at the time of the invention to include Lyle's teaching with Rostoker's method in order to provide user with the ability to pause and resume entire process with a push of button.

As per claim 15, Rostoker and Lyle et al. teaches the system of claim 14. Lyle further teaches wherein receiving information comprises receiving an event (Fig 9. item 86); It is inherent that the pause/end would be available only when the user have the permission to pause the process.

As per claim 16, Rostoker and Lyle et al. teaches the system of claim 14. Lyle further teaches further comprising, receiving a request to interrupt the layout engine, and waiting for the

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information from the layout engine indicating that it can be safely interrupted (Fig 5, item 98, Fig 9, item 86); It is inherent that the pause/end would be available only when it is save to interrupt.

As per claim 17, Lyle et al. teaches the method of claim 14 wherein the request comprises a user action (Fig 9. item 86).

As per claim 18, Lyle et al. teaches a computer computer-readable medium having computer executable instructions for performing the method of claim 14 (col. 19, lines 62-64).

As per claim 19, Rostoker et al. teaches a computer-implemented method, comprising:
starting a layout engine to lay out electronic (figure 9, item "VHDL"; col. 15, lines 14-53; Examiner interprets design specification, design description, partitioning, Module description, composition, and functional verification to be a part of editing modeling process.)
model elements that are part of an emulated electronic system (figure 9, item "VHDL"; col. 15, lines 14-53; Examiner interprets design specification, design description, partitioning, Module description, composition, and functional verification to be a part of editing modeling process.)

interrupting the layout engine (col. 10, lines 3-14);
(col. 20, lines 52-57, col. 25, lines 6-10; Examiner interprets the analyzers and interrupters, which are set by the user and can interrupted the compilation, to be user interactions with automatic layout process)

However, Rostoker et al. fails to teach
providing information to the layout engine by which the layout engine preserves state information;

providing information to the layout engine by which the layout engine restores state from the state information and

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restarting the layout engine from the restored state.

Lyle et al. teaches providing information to the layout engine by which the layout engine preserves state information (col. 4, lines 54-64);

providing information to the layout engine by which the layout engine restores state from the state information (col. 10, lines 3-14); It is inherent that when the user resume the process, the layout engine provides the user with the state information by switching the resume button back to the pause/end button; and

restarting the layout engine from the restored state (col. 10, lines 3-14).

It would have been obvious to an artisan at the time of the invention to include Lyle's teaching with Rostoker's method in order to provide user with the ability to pause entire process with a push of button.

As per claim 20, Rostoker and Lyle et al. teaches the system of claim 19. Lyle further teaches wherein starting the layout engine includes communicating information to the layout engine through an interface thereof (col. 10, lines 4-14).

As per claim 21, Rostoker and Lyle et al. teaches the system of claim 19. Lyle further teaches wherein providing information to the layout engine by which the layout engine preserves state information includes passing an interface to the layout engine (col. 10, lines 41-51). It is inherent that the resume button indicates to the user that the system is in a preserved state, which can be resumed.

As per claim 22, Rostoker and Lyle et al. teaches the system of claim 19. Lyle further teaches wherein interrupting the layout engine includes communicating information to the layout engine through an interface thereof (col. 10, lines 41-51, fig 4, item 86).

As per claim 23, which is dependent on claim 22, it is of the same scope as claim 15. (see rejection above).

As per claim 24, Rostoker and Lyle et al. teaches the system of claim 19. Lyle further teaches wherein providing information to the layout engine by which the layout engine restores state information includes passing an interface to the layout engine (col. 10, lines 41-51). It is inherent that when the process is resumed, the button is returned to the pause/end state, which indicate to the user that the process is being executed.

As per claim 25, Rostoker and Lyle et al. teaches the system of claim 19. Lyle further teaches comprising, receiving events from the layout engine (col. 10, lines 14-18).

As per claim 26, which is dependent on claim 25, it is of the same scope as claim 4 (see rejection above).

As per claim 27, Rostoker and Lyle et al. teaches the system of claim 19. Lyle further teaches comprising, calling the layout engine to receive status information therefrom (col. 12, lines 61-68).

As per claim 29, Rostoker and Lyle et al. teaches the system of claim 19. Lyle further teaches a computer computer-readable medium having computer executable instructions for performing the method of claim (col. 9, lines 24-28).

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker et al. (US 6,470,482) in view of Lyle (US 5,956,023) in view of Hurtado et al. (US 6,418,421).

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As per claim 28, Rostoker and Lyle et al. teach the method of claim 19. However, they fail to teach wherein the status information includes data corresponding to time remaining to complete laying out the model elements. Hurtado et al. teach a method wherein the status information includes data corresponding to time remaining to complete laying out the model elements (col. 56, lines 20-35.). It would have been obvious to an artisan at the time of the invention to include Hurtado's teaching with engine of Lyle et al. and Rostoker et al. in order to allow the users to utilize their time more efficiently.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker et al. (US 6,470,482) in view of Lyle (US 5,956,023) in view of Wittenburg et al. (US 6,515,656).

As per claim 11, Lyle et al. teaches the system of claim 1. However, Rostoker et al. and Lyle et al. fail to teach the system wherein the layout engine comprises a pluggable software component. Wittenburg teaches usage and implementation of pluggable software (col. 7, lines 14-34). It would have been obvious to an artisan at the time of the invention to include Wittenburg's teaching with engine of Lyle et al. and Rostoker in order to allow user to add components that are independent of other components.

As per claim 12, Rostoker et al., Lyle et al. and Wittenburg teach the system of claim 1. Wittenburg further teaches wherein the modeling engine comprises a pluggable software component (col. 7, lines 14-34).

Response to Argument

Applicant's arguments filed on 9/6/05 have been fully considered but they are not persuasive.

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Applicant's arguments focused on the following:

A) Rostoker and Lyle fails to teaches "one interface connecting the modeling engine to the layout engine..." that provides "state-maintained user interaction with the automatic layout process other than to cancel the automatic layout process." KK

B) There is no motivation to combine Rostoker with Lyle.

A) Examiner agrees that Rostoker fails to teach "one interface connecting the modeling engine to the layout engine..." that provides "state-maintained user interaction with the automatic layout process other than to cancel the automatic layout process."

However, Lyle teaches this limitation because Lyle's interface allows users to pause the implementation process, and then the interface allows the users to resume from the same point. (column 10, lines 40-52) By allowing users to pause and resume at the same point, Lyle allows user to maintain the state of the process.

B) Examiner disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, Lyle provides a motivation to combine his teaching with another interface and that is to "give the operator the choice of continuing with the procedure or halting it." (column 10, lines 51)

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Lyle does not teach away from Rostoker. In fact, Rostoker allows user to continue from a previous simulation's ending point, where a previous state data are preserved and stored. (column 10, line 7-57) Therefore, Rostoker's feature is further enhanced with Lyle's teaching.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peng Ke whose telephone number is (571) 272-4062. The examiner can normally be reached on M-Th and Alternate Fridays 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kristine L. Kincaid can be reached on (571) 272-4063. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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